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## (54) Timing recovery in a network-synchronized modem

(57) A timing technique for a Quantization-Level-Sampling (QLS) modem puts timing information in a downstream pulsed signal transmitted from the public switched telephone network (PSTN) to the QLS modem. In response to this timing information, the QLS modem synchronizes to the network sampling clock in the PSTN. In particular, the pulsed signal includes data-bearing samples, which were provided by a far-end QLS modem, and at least one non-user-data-bearing (NUDB) sample in which the level of this NUDB sample periodically alternates. The QLS modem extracts timing information from this periodic alternating signal level to synchronize the QLS modem to the network sampling clock.

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# EUROPEAN SEARCH REPORT

Application Number
EP 96 30 1907

## DOCUMENTS CONSIDERED TO BE RELEVANT

| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (Int.Cl.6) |
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| X | US 4 868 850 A (KAKU TAKASHI ET AL)<br>19 September 1989<br>* column 1, line 8-14 *<br>* column 2, line 46 - column 3, line 3 *<br>* column 6, line 57 - column 7, line 16 *<br>* column 8, line 18-31 *<br>* column 8, line 56-65 *<br>* column 9, line 48 - column 10, line 64 *<br>* column 17, line 10-47 * | 1-3,7 | H04L7/08<br>H04L7/04<br>H04J3/06<br>H04L7/06<br>H04L25/49<br>H04L5/04 |
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H04L
H04J

The present search report has been drawn up for all claims

| Place of search | Date of completion of the search | Examiner |
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| THE HAGUE | 5 March 1999 | Traverso, A |

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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## ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 96 30 1907

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